

Plan ahead for smooth

# Air Traffic Flow

OPTAMOS  
Departure Management  
System

Gates  
D01-99  
→

Abflug  
departure  
→

  
**ADB  
SAFEGATE**

# How does the Departure Management System work?

## The Challenge

We have all learned that airports represent the bottlenecks of civil aviation. Even the most sophisticated ATC systems in combination with the most skilled Air Traffic Controllers (ATCOs) alone will not be able to cope with future challenges. Additional runways are difficult to get authorized and built, while demands continues to grow. The requirements are manifold. Today we are not only looking at total capacity. Runway throughput will always be essential, but other goals also have to be met:

- ▶ Integration into CDM systems
- ▶ Reduced emissions from aircraft in runway holding point queues
- ▶ Improve slot adherence
- ▶ Support remote de-icing procedures
- ▶ Maximum predictability in order to improve ground handling procedures and passenger streams
- ▶ Reduction of fuel consumption
- ▶ Improved efficiency in the allocation of staff and equipment

## The ADB SAFEGATE Solution

**OPTAMOS** – as a part of ADB SAFEGATE Tower ATM package – is a tool for accurate planning of departure streams. The most advanced algorithms combined with a clear HMI provide a user with accurate and easy-to-handle software support. OPTAMOS derives its name from its main task – optimizing the take-off sequence and start-up times to establish the most economic traffic flow for departures.

## The Concept

Calculations with numerous variables to predict/plan future traffic flows over the medium to long term are too complex for human beings; computers can do this much better. OPTAMOS takes over the calculation to plan and schedule the departure traffic. OPTAMOS is available as a standalone solution for Departure Management or as an integrated Arrival and Departure Management Solution with an interface to an external Arrival Management Solution.

Information sharing is another very important issue. Gone are the times when ATC, Airlines and Airports all had their own data pool. OPTAMOS is ready to receive and disseminate data from and to various sources and uses the collected information to further improve its internal calculations. OPTAMOS integrates seamlessly with AODBs, stand allocation schemes, electronic flight strip systems, such as the advanced DIFLIS system, and many other systems to integrate fully into your local environment.

## Input Data

Radar

Push-back and taxitime statistics

Flight Plan

Aircraft type, WTC, engine type  
SID, TOBT

Configuration

Separation rules, runway allocation rules etc.  
Airport map, pushback procedures, taxi preferences  
Runway allocation rules etc.

The most important feature are the algorithms used by the OPTAMOS itself. These are used to calculate:

- ▶ Variable taxi times
- ▶ Runway Allocation
- ▶ TSAT (Target Start-Up Approval Time)
- ▶ TTOT (Target Take-Off Times)
- ▶ De-ice start time
- ▶ Integration with external Arrival Management Systems



OPTAMOS is highly flexible. Runway changes, closures, including temporary closure of taxiways, can easily be taken into consideration in order to deliver precise TSATs. OPTAMOS can handle remote deicing situations and remote parking, as well as flow management restrictions from regulating bodies.

OPTAMOS is also ready to cope with whatever local procedures you may have. Is a TOBT (Target Off Block Time) available? The OPTAMOS uses it. And if not, the EOBT will be used as a second option.

Future runway configurations can be entered for different time phases, all planned well ahead and easily changeable. SIDs are stored in the system's database and respected along with local separation procedures and regulations.

**Safety Logic**

During peak traffic hours, ATCOs require assistance to avoid possible conflicts. OPTAMOS plays a vital role in increasing the safety level by creating smooth and predictable traffic streams.

**Total Flexibility**

OPTAMOS can be tailored to meet and exceed your local requirements – this tailoring will be carried out together with future users. Local habits and procedures will be reflected in the OPTAMOS suite and can be implemented in steps to ease the transition phase.

**Capacity Enhancement**

By precisely calculating departure sequences, with the possibility to include inbound traffic, OPTAMOS utilizes every departure slot available, which allows for maximized capacity. OPTAMOS guarantees a continuous flow of traffic, always close to the maximum capacity level.



**Key Features**

- Full A-SMGCS integration to improve taxi time calculations: OPTAMOS continuously compares stored taxi times with the actual flight progress of taxiing aircraft, bringing more precise results and higher reliability
- Easy and intuitive handling: The information provided to an ATCO is reduced to an absolute minimum. As a result, controllers will quickly accept the transition away from legacy planning procedures
- Reduced costs for transition training

**Benefits**

- Improved predictability for departure times
- Reduced emissions through control of the runway holding point queue length
- Integration with other systems enables easy data sharing
- Enhanced runway capacity
- Can be easily adapted to local procedures
- Based on the experience and continuous cooperation with a large number of active ATCOs from various sites, OPTAMOS is the number one tool for ATCOs



ADB SAFEGATE is a leading provider of intelligent solutions that deliver superior airport performance from approach to departure. We partner with airports and airlines to analyze their current structures and operations, and jointly identify and solve bottlenecks. Our consultative approach enables airports to improve efficiency, enhance safety and environmental sustainability, as well as reduce operational costs. Our portfolio includes solutions and services that harmonize airport performance, tackling every aspect of traffic handling and guidance, from approach, runway and taxiway lighting, to tower-based traffic control systems and intelligent gate and docking automation.

ADB SAFEGATE has 900+ employees in more than 20 countries and serves some 2,000+ airports in more than 175 countries.

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